

What is claimed is:

1. An electrical property evaluation apparatus for measuring an electrical property of an object to be measured, comprising:

a magnetic field generating mechanism for generating a magnetic field in a target area on the object;

a magnetic sensor for measuring the magnetic field near the target area;

a contact having a conducting probe, the contact supported so that the probe can be brought into contact with the target area;

a voltage source for applying a voltage to the probe;
and

an electrical property measuring section for measuring a current or an electrical resistance between the probe and the object in contact with each other.

2. The electrical property evaluation apparatus of claim 1, wherein the magnetic field generating mechanism includes a pair of magnetic field coils, each having a magnetic pole member, the magnetic field coils located opposite to each other, and

the magnetic sensor and contact are located in a center location between the pair of magnetic pole members.

3. The electrical property evaluation apparatus of claim 2, wherein the pair of magnetic pole members are shaped into a rod or strip form and located with an inclination to a surface of the target area with tips thereof facing to the target area.

4. The electrical property evaluation apparatus of claim 3, further comprising a moving mechanism capable of relatively moving the contact and the object to be measured thereby to scan while keeping the probe in contact with the object.

5. The electrical property evaluation apparatus of claim 4, wherein the contact is a cantilever, and

the apparatus further comprises a bending measurement mechanism for measuring an amount of bending of the cantilever when the probe is brought into contact with the object to be measured; and

a control section for controlling the moving mechanism so as to make the bending amount obtained in the bending measurement mechanism constant.

6. The electrical property evaluation apparatus of claim 2, further comprising a moving mechanism capable of relatively moving the contact and the object to be measured thereby to scan while keeping the probe in contact with the object.

7. The electrical property evaluation apparatus of claim 2, wherein the contact is a cantilever, and

the apparatus further comprises a bending measurement mechanism for measuring an amount of bending of the cantilever when the probe is brought into contact with the object to be measured; and

a control section for controlling the moving mechanism so as to make the bending amount obtained in the bending measurement mechanism constant.

8. The electrical property evaluation apparatus of claim 1, further comprising a moving mechanism capable of relatively moving the contact and the object to be measured thereby to scan while keeping the probe in contact with the object.

9. The electrical property evaluation apparatus of claim 1, wherein the contact is a cantilever, and

the apparatus further comprises a bending measurement mechanism for measuring an amount of bending of the cantilever when the probe is brought into contact with the object to be measured; and

a control section for controlling the moving mechanism so as to make the bending amount obtained in the bending measurement mechanism constant.